

March 6, 2007

Carrie E. Houtman
Toxicology Consulting
The Dow Chemical Company
1691 North Swede
Midland, MI 48674

Dear Ms. Houtman:

The Office of Pollution Prevention and Toxics is transmitting EPA's comments on the robust summaries and test plan for Chlorinated C3 Stream posted on the ChemRTK HPV Challenge Program Web site on January 18, 2005. I commend The Dow Chemical Company for its commitment to the HPV Challenge Program.

EPA reviews test plans and robust summaries to determine whether the reported data and test plans will provide the data necessary to adequately characterize each SIDS endpoint. On its Challenge Web site, EPA has provided guidance for determining the adequacy of data and preparing test plans used to prioritize chemicals for further work.

EPA will post this letter and the enclosed comments on the HPV Challenge Web site within the next few days. As noted in the comments, we ask that Dow Chemical advise the Agency, within 60 days of this posting on the Web site, of any modifications to its submission. Please send any electronic revisions or comments to the following e-mail addresses: oppt.ncic@epa.gov and chem.rtk@epa.gov.

If you have any questions about this response, please contact me at 202-564-8617. Submit questions about the HPV Challenge Program through the "Contact Us" link on the HPV Challenge Program Web site pages or through the TSCA Assistance Information Service (TSCA Hotline) at (202) 554-1404. The TSCA Hotline can also be reached by e-mail at tsc hotline@epa.gov.

I thank you for your submission and look forward to your continued participation in the HPV Challenge Program.

Sincerely,

/s/

Mark W. Townsend, Chief
HPV Chemicals Branch

Enclosure

cc: O. Hernandez
C. Augustyniak
J. Willis

**EPA Comments on Chemical RTK HPV Challenge Submission:
C3 Chlorinated Hydrocarbon Stream**

Summary Of EPA Comments

The sponsor, The Dow Chemical Company, submitted a test plan and robust summaries to EPA for C3 Chlorinated Hydrocarbon Stream (CAS No. 63890-96-5) dated December 14, 2004. EPA posted the submission on the ChemRTK HPV Challenge Web site on January 18, 2005. Data on 1,2-dichloro-propane (CAS No. 78-87-5), used as a supporting chemical, are also provided.

EPA has reviewed this submission and has reached the following conclusions:

1. General Comment. The submitter needs to provide a complete compositional analysis of the C3 chlorinated hydrocarbon stream (Chloro C3 stream) that specifies the remaining 20% of the components.
2. Analog Justification. The submitter needs to provide additional information and/or data to support its position that 1,2-dichloropropane will adequately represent other components in the stream and the stream as a whole for health effects purposes. For most other endpoints, the submitted data for 1,2-dichloro-propane do not adequately represent the sponsored chemical.
3. Physicochemical Properties and Environmental Fate. The submitted physicochemical and environmental fate data for 1,2-dichloropropane do not adequately represent those characteristics of the sponsored chemical. The quantities of other components in the mixture (8% 1,2-trichloropropene, 6.5% 2-chloropropene, and approximately 20% unidentified alkenes) are sufficient to influence these properties. Therefore, the submitter needs to provide physicochemical and environmental fate data for at least 2-chloropropene and 1,1,2-trichloropropene.
4. Health Effects. EPA reserves judgement on the adequacy of the data submitted for 1,2-dichloropropane to characterize the mammalian toxicity of the Chloro C3 stream pending receipt of adequate justification for that approach.
5. Ecological Effects. The submitted data for 1,2-dichloropropane do not represent chloroalkenes and other unidentified components present in the stream. The quantities of other components in the mixture (8% 1,2-trichloropropene, 6.5% 2-chloropropene, and approximately 20% unidentified alkenes) are significant enough to influence the ecotoxicological properties of the sponsored chemical. The submitter needs to provide data on the commercial mixture to address these endpoints.

EPA requests that the submitter advise the Agency within 60 days of any modifications to its submission.

**EPA Comments On The C3 Chlorinated Hydrocarbon Stream
Challenge Submission**

General

The submitter states that the Chloro C3 stream “consists of several chlorinated 3-carbon chemicals which are produced as intermediate stream from several manufacturing product lines” with the largest components, 1,2-dichloropropane (approximately 65%), trichloropropene (unspecified isomer – approximately 8%) and 2-chloropropene (approximately 6.5%). The remaining 20% of the stream is composed of a number of chlorinated propenes “with no other single component present at more than a 5% of the total stream.” Although the submitter notes that the composition of this substance is “somewhat variable”, the test plan does not provide a typical analysis of the stream so that the importance of each component can be independently assessed. Such information needs to be included in the test plan.

Analog Justification

Physicochemical and environmental fate properties. The submitter uses measured data and estimated values obtained for 1,2-dichloropropane to represent these properties of the Chloro C3 stream. Given that the sponsored substance is a mixture, it is expected that the physicochemical and environmental fate properties for the substance will be characterized by a range of values for different components instead of by a single value from one of the components in the mixture. Consequently, its use as an analog for these endpoints is not supported. For biodegradation, however, structural considerations and available data suggest that the data for 1,2-dichloropropane will be similar to the other Chloro C3 stream components.

Health Effects. The submitter proposes to use data on the major component of the mixture, 1,2-dichloropropane, to represent the toxicological properties of the Chloro C3 stream because of “its high volume percent of the stream and the wealth of mammalian and environmental toxicity”. The submitter states the similarity between the mammalian toxicities of 1,2-dichloropropane and two other major components in the stream, trichloropropene and 2-chloropropene based on the studies of Bingham (2001), but did not provide data to support this statement. Bingham (2001) reports a large difference between the acute oral LD₅₀ (rat) of 140 mg/kg for a mixture of dichlorinated propanes and propenes and the submitter’s value of 2200 mg/kg (rat) for 1,2-dichloropropane from the only acute oral study of acceptable quality. Additionally, values for both the acute inhalation (4-hour) LC₅₀ of 1000 ppm and the dermal LD₅₀ of 779 mg/kg found in Bingham (2001) for the mixture of dichlorinated propanes and propenes are lower than the corresponding values of ≥ 2000 ppm and 10,100 mg/kg provided by the submitter for dichloropropane alone for studies of acceptable quality. Therefore, contrary to the submitter’s conclusion, the data cited by the submitter in the Bingham reference suggest that the acute toxicity data provided by the submitter for 1,2-dichloropropane will not adequately represent the acute toxicities of the Chloro C3 stream. Further, if the differences seen in the acute toxicities noted above are representative of the differences that will be seen for the other health effect endpoints, then 1,2-dichloropropane will not adequately represent the toxicity of the Chloro C3 stream. Therefore, the submitter needs to provide additional information and/or data to support its position that 1,2-dichloropropane will adequately represent other components in the stream and the stream as a whole for health effects purposes.

For aquatic toxicity, EPA considers that 1,2-dichloropropane does not represent chloroalkenes or other unidentified components present in the stream. Information submitted to EPA under Section 8e of TSCA (8EHQ-1005-16254) suggests that the haloalkene 1,3-dichlorobutene is toxic to aquatic organisms (EC₅₀ 0.32 mg/L for Daphnia). However, the representative substance, 1,2-dichloropropane (a haloalkane), shows significantly different toxicity (EC₅₀ approx. 25 mg/L for Daphnia). Therefore, 1,2-dichloropropane alone does not adequately characterize the toxicity of the Chloro C3 stream.

Test Plan

Physicochemical Properties (melting point, boiling point, vapor pressure, partition coefficient and water solubility) and Environmental Fate (photodegradation, stability in water, biodegradation, fugacity)

The physicochemical and environmental fate data provided by the submitter for 1,2-dichloropropane do not adequately represent the physicochemical and environmental fate characteristics of the C3 chlorinated Stream. 1,2-Dichloropropane comprises only 65 % of the sponsored chemical and trichloropropene and 2-chloropropene comprise 8 and 6.5 %, respectively. These percentages are significant and will influence the physicochemical properties and environmental fate of the sponsored chemical. The submitter needs to provide physicochemical and environmental fate data for at least 2-chloropropene and for 1,1,2-trichloropropene.

Health Effects

No data were provided on the Chloro C3 stream, but the submitter provided data for all health effects endpoints for 1,2-dichloropropane. As noted above, the submitter provided insufficient information to support the use of 1,2-dichloropropane as representative of potential health effects of other chemicals in the stream. No data were submitted for other significant components of the Chloro C3 stream, such as trichloropropene (unspecified isomer) and 2-chloropropene, and the remaining components of the Chloro C3 stream. Such data are essential in conducting an independent evaluation of the toxicity of the sponsored substance. EPA reserves judgement on adequacy of the data submitted for 1,2-dichloropropane to characterize mammalian toxicity of other components in the stream and the stream as a whole, until additional information is received.

Ecological Effects (fish, invertebrates, and algae).

EPA considers submitted data for 1,2-dichloropropane do not represent alkenes and other unidentified components present in the stream. The quantities of other components in the mixture (8% 1,2-trichloropropene, 6.5% 2-chloropropene, and approximately 21% unidentified alkenes) are significant enough to influence the ecotoxicological properties of the sponsored chemical. As noted in the Analog Justification section above, EPA has information (see Analog Justification) suggesting that the aquatic toxicity of 1,2-dichloropropane (a chloroalkane) will be significantly different from the chloroalkenes present in the stream. Therefore, 1,2-dichloro-

propane alone will not adequately characterize the Chloro C3 stream. The submitter needs to provide aquatic toxicity information on the alkenes that are present in the stream or on appropriate analogs.

Specific Comments on the Robust Summaries

EPA has not reviewed most of the Robust Summaries in detail because of the data needs noted above under Analog Justification and elsewhere.

Followup Activity

EPA requests that the submitter advise the Agency within 60 days of any modifications to its submission.